

SUMMARY

- Conductivity, Temperature, Pressure (optional), and Dissolved Oxygen measurements, at user-programmable intervals (10 seconds to 6 hours).
- RS-232 serial interface (RS-485 optional), internal memory, and internal batteries (can be powered externally).
- *Adaptive Pump Control* for high-accuracy oxygen data.
- Expendable anti-foulant devices, unique flow path, and pumping regimen for maximum bio-fouling protection.
- Depths to 250 meters (*ShallowCAT* plastic housing) or 7000 meters (titanium housing).
- Adds to Sea-Bird's field-proven MicroCAT family, with more than 8000 instruments deployed since 1997.

DESCRIPTION

The SBE 37-SMP-IDO MicroCAT is a high-accuracy conductivity and temperature (pressure optional) recorder with **S**erial interface, internal batteries, **M**emory, integral **P**ump, and **I**ntegrated **D**issolved **O**xygen sensor. Constructed of titanium and other non-corroding materials for long life with minimal maintenance, the MicroCAT is designed for moorings or other long duration, fixed-site deployments.

Calibration coefficients are stored in EEPROM, allowing output of C, T, P, DO, and time in ASCII engineering units (decimal or XML; raw output available); salinity and sound velocity can also be output.

SENSORS

Temperature and Conductivity sensors are based on our field-proven SeaCAT and SeaCAT*plus* products. Electrical isolation of conductivity electronics eliminates any possibility of ground-loop noise. Our unique internal-field conductivity cell permits the use of expendable anti-foulant devices, for long-term bio-fouling protection. The aged and pressure-protected thermistor has a long history of exceptional accuracy and stability.

The IDO is a frequency-output version of our field-proven SBE 43 Dissolved Oxygen sensor, with the same performance specifications.

The optional strain-gauge pressure sensor is available in eight ranges, from 0 - 20 meters to 0 - 7000 meters. Compensation of the temperature influence on pressure is performed by the MicroCAT's CPU.

PUMP

The integral pump runs each time the MicroCAT samples, providing the following advantages:

- **Improved conductivity and oxygen response** – The pump flushes the previously sampled water from the conductivity cell and oxygen sensor plenum, and brings a new water sample quickly into the system.
- **Improved anti-foul protection** – Water does not freely flow through the conductivity cell and oxygen sensor plenum between samples, allowing the anti-foul concentration inside the system to maintain saturation.

With *Adaptive Pump Control*, the MicroCAT calculates the pumping time for best oxygen accuracy, as a function of the previous sample's temperature and pressure (maximizing data quality while minimizing power consumption).

COMMUNICATIONS AND INTERFACE

The MicroCAT communicates via standard RS-232 interface. Data can be uploaded at up to 115.2K baud; real-time data can be transmitted up to 1600 meters at 600 baud, simultaneous with recording. The user can upgrade firmware through the external connector, without opening the housing. An optional RS-485 interface allows multiple MicroCATs to share a common 2-wire cable, minimizing cable complexity for C-T chains.

User-selectable operating modes include:

- **Autonomous Sampling** – At pre-programmed intervals of 10 seconds to 6 hours, the MicroCAT wakes up, runs the pump, samples, stores data in memory, and goes to sleep.
- **Polled Sampling** – On command from a computer or satellite, radio, or wire telemetry equipment, the MicroCAT runs the pump, takes a sample, and transmits data.
- **Serial Line Sync** – In response to a pulse on the serial line, the MicroCAT wakes up, runs the pump, samples, stores data in memory, and goes to sleep.

SOFTWARE

The MicroCAT is supplied with a powerful Windows 2000/XP software package, Seasoft® V2, which includes:

- SeatermV2® – terminal program for easy communication and data retrieval.
- SBE Data Processing® – programs for calculation, display, and plotting of conductivity, temperature, pressure (optional), dissolved oxygen, and derived variables such as salinity, sound velocity, and density.

Optional plastic (*ShallowCAT*) housing; standard titanium housing also available



